

Case Report

Male breast cancer masquerading as a chronic chest wall ulcer

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ABSTRACT

Male breast cancer is rare and may present with atypical local findings, resulting in delayed or incorrect initial diagnostic consideration. A large ulcerative lesion involving the male chest wall may mimic a primary cutaneous malignancy or chronic inflammatory/infective ulcer. A 49-year-old man presented with a large ulceroproliferative lesion involving the left anterior chest wall and nipple–areolar region. The lesion measured approximately 23×75×62 mm³ on imaging and was associated with left axillary lymphadenopathy. Ultrasonography demonstrated a heterogeneous hypoechoic vascular mass, while contrast-enhanced CT showed an ulcerated soft-tissue lesion involving the skin and abutting/involving the underlying pectoral musculature. Core biopsy showed poorly differentiated carcinoma. Immunohistochemistry demonstrated CK7 positivity, strong GATA3 positivity, diffuse strong estrogen receptor and progesterone receptor expression (Allred score 8/8 for both), and HER2 negativity, supporting mammary origin. The patient underwent wide local excision with left axillary lymph node dissection and reconstruction with a latissimus dorsi myocutaneous flap. Final pathology showed a 10×7×2 cm³ infiltrative invasive breast carcinoma involving skin and skeletal muscle, with lymphovascular and perineural invasion, clear margins, and metastases in 3 of 10 axillary lymph nodes with extranodal extension. Male breast carcinoma should be considered in the differential diagnosis of persistent or fungating ulcers involving the nipple–areolar or anterior chest wall region. Correlation of clinical findings, imaging, histopathology and immunohistochemistry is essential for establishing the primary site and guiding treatment.

Keywords: Male breast cancer, Invasive breast carcinoma, Chest wall ulcer, Diagnostic challenge, GATA3, Estrogen receptor, Progesterone receptor, HER2

INTRODUCTION

Male breast cancer (MBC) is an uncommon malignancy, accounting for less than 1% of all breast cancer diagnoses. Its rarity, limited public awareness and absence of routine screening in men contribute to delayed presentation and diagnosis. Most male breast carcinomas are invasive carcinomas of no special type and are frequently hormone receptor positive and HER2 negative.¹⁻⁴

The usual clinical presentation is a painless subareolar or retroareolar mass, nipple retraction or discharge, or a palpable axillary node. Because men have relatively little

breast tissue, tumors may extend to the skin and underlying structures relatively early. Consequently, ulceration or a fungating chest wall lesion may occasionally dominate the clinical presentation and mimic a primary cutaneous malignancy, chronic ulcer, infection or other soft-tissue neoplasm.^{1,3,4}

When the lesion is centered in the chest wall rather than obviously within recognizable breast tissue, establishing the primary site can be challenging. Histopathology may demonstrate only a poorly differentiated carcinoma, and immunohistochemistry becomes particularly valuable. GATA3 and cytokeratin 7 can support mammary epithelial differentiation, while estrogen receptor (ER) and progesterone receptor (PR) expression may further

support the diagnosis in the appropriate clinicopathological context.^{1,5}

This case presents a 49-year-old man with an extensive fungating ulcerative lesion of the left anterior chest wall involving the nipple–areolar region. The case emphasizes the diagnostic difficulty between a primary cutaneous/chest wall carcinoma and male breast carcinoma and demonstrates the importance of multidisciplinary clinicopathological correlation.

CASE REPORT

This case report was prepared from the patient's clinical, radiological, operative and histopathological records. The clinical examination, ultrasonography and contrast-enhanced computed tomography findings were reviewed together with the core biopsy, wide local excision specimen and left axillary lymph node dissection findings. Immunohistochemical results for CK7, ER, PR, HER2 and GATA3 were incorporated into the final diagnostic assessment. The case was managed through a multidisciplinary oncology approach. Patient consent and institutional ethics requirements should be documented according to the policy of the submitting journal before submission.

Clinical presentation

A 49-year-old man presented with a large ulceroproliferative lesion over the left anterior chest wall, centered beneath and involving the left nipple–areolar complex. On clinical examination, the lesion was approximately 23×75×62 mm, with an irregular ulcerated surface and erythematous surrounding skin. It was firm, poorly mobile and adherent to the underlying chest wall. Enlarged left axillary lymph nodes were palpable. The atypical location and fungating appearance raised the differential diagnoses of a primary cutaneous/chest wall malignancy and an underlying breast carcinoma.

Radiological evaluation

Ultrasonography of the left chest wall demonstrated a heterogeneous hypoechoic soft-tissue mass measuring approximately 75×60 mm² with internal vascularity on Doppler examination, raising suspicion of a malignant neoplasm. Contrast-enhanced CT of the thorax demonstrated a 23×75×62 mm³ heterogeneously enhancing soft-tissue lesion involving the left anterior chest wall, with involvement of the overlying skin and an exophytic ulcerative component. The lesion was closely related to and involved the underlying pectoral musculature. Enlarged left axillary lymph nodes were also identified.

The clinical and radiological findings were considered highly suspicious for an advanced malignant process. A core needle biopsy was therefore performed and showed poorly differentiated carcinoma.



Figure 1: Preoperative clinical photograph showing the large fungating ulcerative lesion involving the left anterior chest wall and nipple–areolar region.

Pathological and immunohistochemical findings

The wide local excision specimen measured 14×10×5 cm³ and contained an infiltrative grey-white to yellow firm tumor measuring 10×7×2 cm³. The overlying skin measured 13.5×9.5 cm² and showed a fungating ulcer measuring 10×7 cm². The tumor involved the skin and skeletal muscle.



Figure 2: Postoperative photograph after wide local excision and reconstruction with a latissimus dorsi myocutaneous flap

Microscopically, the tumor was unifocal and infiltrative, with malignant cells arranged in nests, cords and trabeculae. The cells were polygonal with round nuclei, vesicular chromatin, prominent nucleoli and eosinophilic cytoplasm. Brisk mitotic activity (25–30 mitoses/10 high-power fields) and focal necrosis were present. The initial impression was poorly differentiated carcinoma.

Lymphovascular invasion and perineural invasion were present. The superior, inferior, medial and lateral cutaneous/soft-tissue margins were free of tumor at 1.3

cm, 1.0 cm, 1.0 cm and 1.5 cm, respectively. The base of resection was also free of tumor, with a 1.2 cm clearance. Ten left axillary lymph nodes were examined; metastatic carcinoma was identified in 3 of 10 nodes. Extranodal extension greater than 2 mm was present, and the largest metastatic nodal deposit measured 1.5 cm.

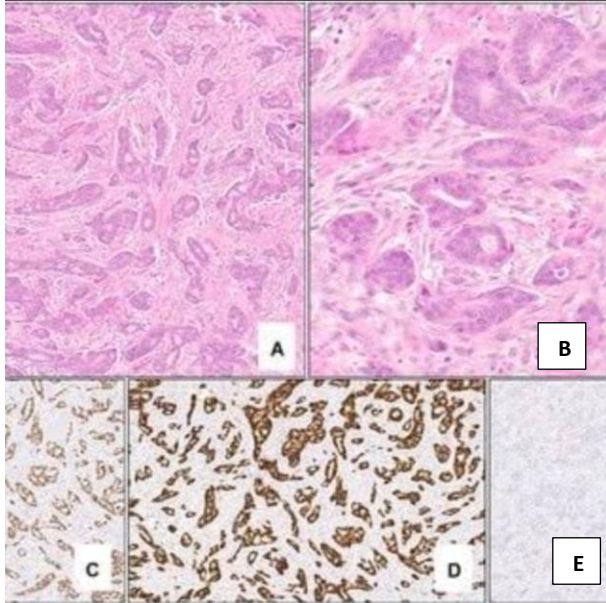


Figure 3 (A-E): Histopathological examination showing infiltrative carcinoma arranged in nests and cords with cytological atypia and desmoplastic stroma (H&E, representative low- and high-power views).

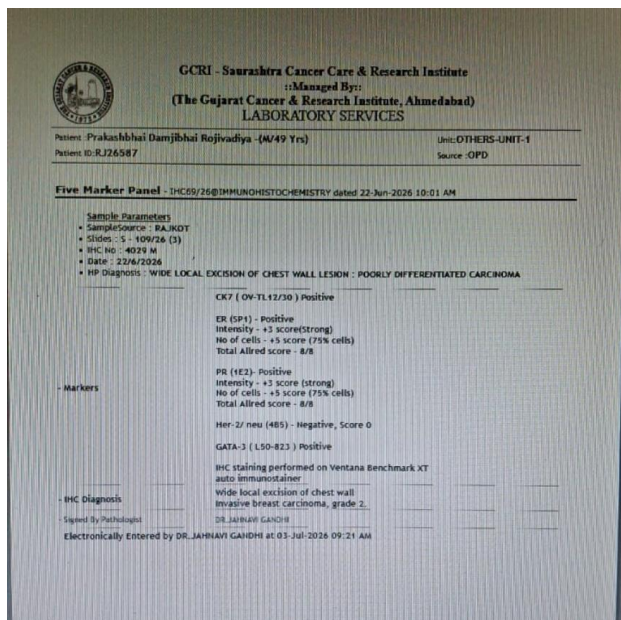


Figure 4. Immunohistochemical profile supporting mammary origin: CK7 positive, ER strongly positive, PR strongly positive, HER2 negative and GATA3 positive.

Immunohistochemistry showed diffuse strong nuclear positivity for ER and PR, with an Allred score of 8/8 for each marker. CK7 was positive and GATA3 showed strong nuclear positivity. HER2/neu was negative (score 0). The final immunohistochemical diagnosis was invasive breast carcinoma, grade 2. The combination of mammary-associated marker expression and the clinical location supported a primary male breast carcinoma rather than a primary cutaneous carcinoma.

Treatment and outcome

The patient was discussed in a multidisciplinary tumor board. Because of the large fungating primary lesion with recurrent bleeding and the need for local control, surgical resection was undertaken. The patient underwent wide local excision of the left chest wall lesion with left axillary lymph node dissection. Reconstruction was performed using a latissimus dorsi myocutaneous flap. The postoperative course was reported as uneventful. Further systemic and/or adjuvant therapy was to be determined according to the final pathological stage, receptor profile and multidisciplinary assessment.

DISCUSSION

Male breast cancer is rare, representing less than 1% of breast cancer diagnoses, and consequently remains less familiar to both patients and clinicians than female breast cancer. Men generally present later in life and may have more advanced local or nodal disease at diagnosis.¹⁻⁴ In the present case, the age of 49 years and the extensive ulcerative lesion illustrate an atypical presentation that can delay recognition of the breast as the primary site.

The major diagnostic challenge in this case was the apparent location of the lesion on the chest wall. The large fungating ulcer could readily suggest a primary cutaneous squamous cell carcinoma, another skin malignancy, chronic infection or a soft-tissue neoplasm. However, the lesion was centered in the nipple-areolar region and imaging demonstrated a large underlying soft-tissue mass. Because male breast tissue is limited, a breast carcinoma can rapidly involve the overlying skin and pectoral structures, producing an ulcerated or fungating appearance.^{1,3,4}

Histopathology initially demonstrated poorly differentiated carcinoma, which by itself did not completely resolve the question of origin. This is where immunohistochemistry was decisive. The tumor showed strong GATA3 and CK7 positivity together with diffuse strong ER and PR expression and HER2 negativity. GATA3 is a useful marker of mammary epithelial differentiation, while the strong hormone-receptor profile is characteristic of the biology of most male breast carcinomas. The final IHC interpretation classified the lesion as invasive breast carcinoma, grade 2.^{1,5}

Table 1: Summary of clinicopathological findings.

Parameters	Findings
Age/sex	49-year-old man
Primary site	Left anterior chest wall involving nipple–areolar region; IHC supported breast primary
Clinical/imaging tumor size	Approximately 23×75×62 mm
Final pathological tumor size	10×7×2 cm
Histology	Invasive breast carcinoma, grade 2; initially described as poorly differentiated carcinoma
Skin / muscle	Both involved by tumor
Lymphovascular invasion	Present
Perineural invasion	Present
Margins	All reported peripheral and basal margins free of tumor
Axillary nodes	3/10 positive
Extranodal extension	>2 mm, present
Largest nodal deposit	1.5 cm
ER	Positive; Allred 8/8
PR	Positive; Allred 8/8
HER2	Negative, score 0
CK7	Positive
GATA3	Positive
Operation	Wide local excision+left axillary lymph node dissection+latissimus dorsi myocutaneous flap reconstruction
Age/sex	49-year-old man
Primary site	Left anterior chest wall involving nipple–areolar region; IHC supported breast primary
Clinical/imaging tumor size	Approximately 23×75×62 mm

The final resection specimen provided additional evidence of aggressive local and regional disease. The 10 cm tumor involved the skin and skeletal muscle and demonstrated both lymphovascular and perineural invasion. Three of ten axillary lymph nodes contained metastatic carcinoma, with extranodal extension and a largest nodal deposit of 1.5 cm. The reported negative peripheral and basal margins indicate complete macroscopic and microscopic clearance in the submitted specimen.

From a TNM perspective, skin ulceration/fungation involving the breast supports a T4b category when it meets the criteria for ulceration or other macroscopic skin involvement.⁶ The pathological finding of metastasis in three ipsilateral axillary lymph nodes supports pN1a when the involved nodes are movable ipsilateral axillary nodes and no other nodal features alter the category. The pathology report itself does not establish the M category; therefore, the final stage should be stated only after correlation with the systemic staging studies. If the pulmonary abnormalities described on preoperative imaging were proven to represent distant metastases, the disease would be M1 and therefore stage IV. If they were not metastatic, the final stage should be assigned according to the complete staging work-up.

Treatment of male breast cancer generally follows principles established for breast cancer overall, although prospective male-specific evidence is limited. Surgery is selected according to local extent and resectability, with systemic treatment guided by pathological stage and tumor biology. For hormone receptor-positive disease, endocrine therapy is an important component of treatment; ASCO recommends tamoxifen as the preferred adjuvant endocrine therapy for men who are candidates for endocrine treatment.⁷ In the present case, the large fungating lesion with recurrent bleeding provided a clear rationale for surgical local control, while the final receptor profile provides an important basis for subsequent systemic treatment planning.

An additional consideration in male breast cancer is hereditary risk assessment. Current guidance recommends genetic counseling and germline testing for men diagnosed with breast cancer, particularly because pathogenic BRCA2 variants are an important inherited risk factor.⁷ This should be considered during the patient's oncological work-up and family-risk assessment.

The principal lesson from this case is that an ulcerated lesion over the male anterior chest wall should not automatically be considered a primary skin malignancy. When the lesion involves the nipple–areolar region, breast carcinoma must remain in the differential

diagnosis. Integration of examination, imaging, morphology and a focused immunohistochemical panel can establish the primary site and prevent diagnostic delay.

CONCLUSION

Male breast carcinoma can rarely present predominantly as a large fungating ulcer of the anterior chest wall, creating substantial diagnostic overlap with primary cutaneous and soft-tissue malignancies. In lesions involving the nipple–areolar region, a breast primary should be actively considered even when the dominant clinical appearance is an ulcer. Histopathology alone may be insufficient in poorly differentiated tumors; immunohistochemical correlation with markers such as GATA3, CK7, ER, PR and HER2 can be critical in establishing mammary origin. Accurate pathological assessment of local invasion, lymphovascular and perineural invasion, nodal disease and extranodal extension is essential for staging and treatment planning.

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